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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: David C. Morris Group Art Unit: 3745

Serial No.: 09/328,931 Examiner: C. Verdier

Filed: 06/09/1999 Attorney Docket: M01.003

Title: HELICOPTER BLADE ASSEMBLY ADAPTED TO PERMIT
RAPID FORWARD FLIGHT

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SEP 17 2001

TC 3700 MAIL ROOM

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DECLARATION UNDER §1.132

I have examined the subject concept and provide the following comments:

10 During rapid forward flight the blade assembly of the invention operates in a different manner from that of a standard helicopter.

The standard helicopter works in such a manner that each rotating blade is at an angle of attack relative to the disc swept by its blades and provides lift.

15 In the invention however the blades are not at an angle of attack relative to the disk swept by its blades. However the disc is at an angle of attack with respect to the forward velocity. At sufficiently high rotation rates, air flows over a virtual disk created by the rotation of the blade assembly to create lift. Lift is generated due to the angle of attack of the total disc, not the angle of attack of each blade as with a helicopter.

20 Lift will be generated as a function of speed of rotation, angle of attack of the virtual disk and forward speed.

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Richard H. Miller
Richard H. Miller

September 3, 2001

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DECLARATION UNDER §1.132

I have reviewed the concept presented by Mr. David C. Morris and have concluded
that for his invention lift is generated in proportion to the speed of rotation and to the
angle of attack of the virtual disk. It does not depend upon the angle of attack of
10 individual blades.

During rapid forward flight the blade assembly of the invention
operates in a fundamentally different manner from that of a
standard helicopter. The standard helicopter works in such a manner that
15 each rotating blade cuts through the air with a sufficient
angle of attack as to provide lift. In the invention, however, (at sufficiently high rates
of rotation), air flows over a virtual disk created by the rotation of the blade assembly
to create lift: the individual blades do not have a positive angle of attack

20 In addition, between standard blade performance and the virtual
lifting disk concept: advancing and retreating blade speeds
will have no effect on ultimate forward speed as they do
on the forward speed of standard helicopters.
Fast forward flight would be a feature of the invention.

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